

**STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION**

Katie Sieben
Joseph Sullivan
Valerie Means
Matthew Schuerger
John Tuma

Chair
Vice-Chair
Commissioner
Commissioner
Commissioner

**2021 OPTIONAL-IRP COMPLIANCE REPORT OF
DAIRYLAND POWER COOPERATIVE
PURSUANT TO MINN. STAT. § 216B.2422, SUBD. 2b**

Table of Contents

A.	O-IRP Requirements	3
1.	Dairyland member distribution cooperatives	3
2.	Minnesota retail sales	3
B.	Additional Resource Planning Information Submitted by Dairyland	3
C.	Load Trends	4
D.	Current Capacity	5
E.	Capacity Purchases and Sales	7
F.	Genoa #3 Retirement	8
G.	Capacity Additions.....	8
1.	Solar Additions	8
2.	Wind Additions	8
3.	Prospective Solar and Wind Additions	8
4.	Other Additions.....	9
5.	Nemadji Trail Energy Center (NTEC).....	9
H.	Surplus/Deficit	9
I.	Renewable Generation Summary	10
J.	Community Solar	12
K.	Distributed Generation.....	12
L.	Energy Efficiency Program.....	13
M.	Load Management	13
N.	Consideration of Environmental Costs	13
O.	Electric Vehicles	13
P.	Conclusion	14

List of Figures

Figure 1	Dairyland Energy Requirements Composition	5
Figure 2	Dairyland Load and Capability	6
Figure 3	Dairyland Load and Capability – Includes Prospective Bilateral Purchases and Planning Resource Auction Purchases.....	10
Figure 4	Projected Renewable Generation and Existing Renewable Requirements	11
Figure 5	Dairyland Cumulative Installed Distributed Generation	12

List of Tables

Table 1	2020 Dairyland Accredited Capacity	7
---------	--	---

A. O-IRP Requirements

For a Generation and Transmission (“G&T”) cooperative, like Dairyland, to be eligible to file an O-IRP report pursuant to Minn. Stat. § 216B.2422, Subd. 2b. in lieu of an Integrated Resource Plan (“IRP”) pursuant to Minn. Stat. § 216B.2422, Subd. 2, (1) at least 80% of the G&T cooperative’s member distribution cooperatives must be located outside of Minnesota, and (2) the G&T cooperative must provide less than four percent of the electricity annually sold at retail in the state of Minnesota. Dairyland clearly meets these criteria.

1. Dairyland’s Minnesota member distribution cooperatives:

Freeborn-Mower Cooperative Services, Inc.	Albert Lea
People’s Energy Cooperative	Oronoco
MiEnergy Cooperative (successor to Tri-County Electric Cooperative)	Rushford

Only three of the twenty-four member distribution cooperatives are located in the state of Minnesota. The remaining twenty-one member distribution cooperatives are located outside of Minnesota, which is 87.5% of the member distribution cooperatives. Dairyland meets the first qualification of having more than 80% of its member distribution cooperatives located outside of Minnesota.

2. Minnesota Retail Sales

According to the compliance summary document for the Renewable Energy Standards, 2020 Minnesota Retail Sales totaled 61,316,177 MWh. Of that statewide total, Dairyland provided 872,977 MWh of electricity sold at retail in Minnesota for 2020. Thus, in 2020, Dairyland provided 1.42% of the electricity annually sold at retail in Minnesota.

Based on the information provided in sections 1 and 2 above, Dairyland is eligible to file an O-IRP report pursuant to Minn. Stat. § 216B.2422, Subd. 2b. in lieu of an IRP.

B. Additional Resource Planning Information Submitted by Dairyland

1. Electric Utility Annual Report for Minnesota Department of Commerce – submitted eDocket/eFiling system using Docket Number 20-11.

C. Load Trends

Dairyland updates its long-term load forecasts on a two-year cycle prepared in compliance with Rural Utilities Service (RUS) guidelines as stated in 7 CFR, Part 1710, Subpart E of the Federal Register (updated March 2000). The last forecast completed under the two-year cycle was finalized in the fall of 2020 and the next load forecast will be completed in the fall of 2022.

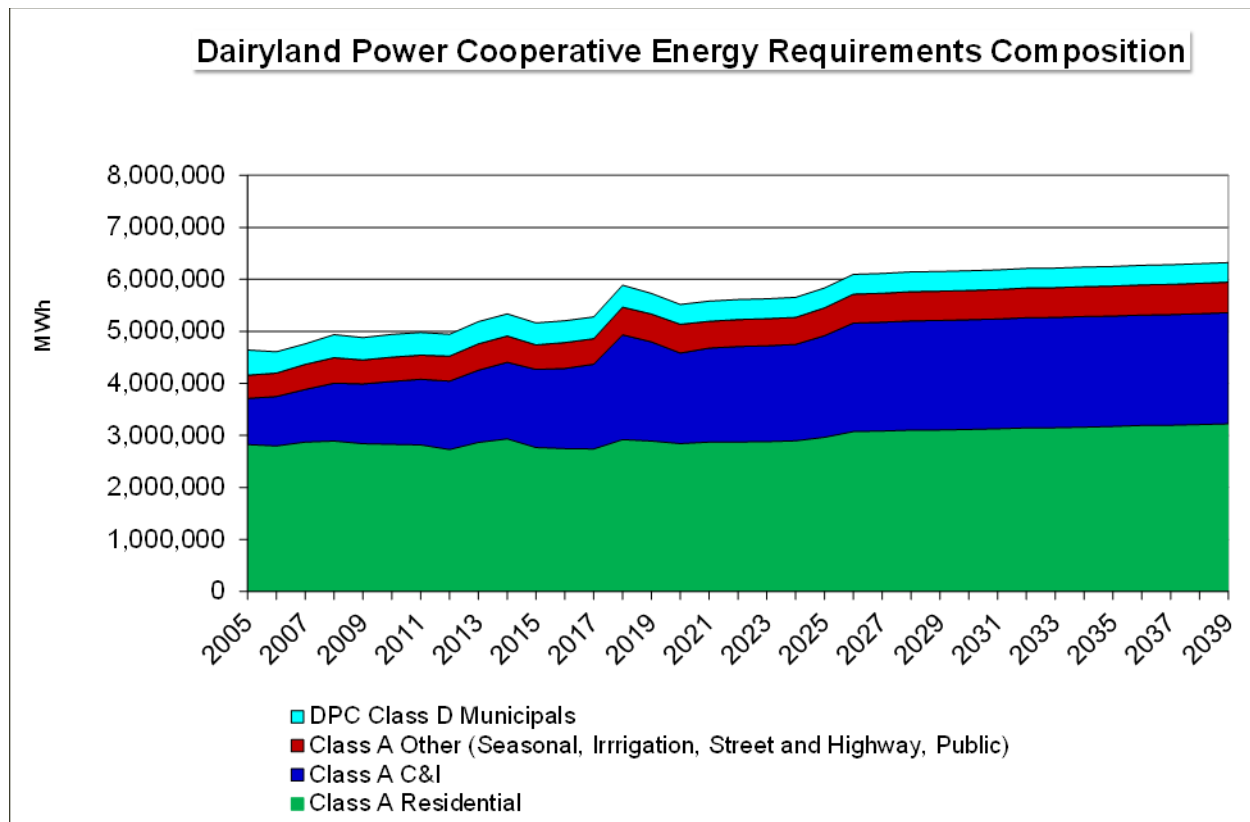
Dairyland's energy and peak demand were forecasted to grow at a 0.5% and 0.7% average annual growth rate respectively over the next 20 years from the 2020 Load Forecast.

Dairyland classifies sales to member cooperatives as Class A. Dairyland's energy sales increased at an average of 1.6% annually over the last five years, while Dairyland's peak demand increased at an average of 2.4% over the same time period. This growth is significantly influenced by the one-time Jo-Carroll Energy load addition that Dairyland began serving in April 2018 (more details below). Energy for Dairyland's member cooperatives Large C&I class has grown from 16.9% of Class A sales five years ago to 17.2% of Class A sales now (2015-2020). While the Large C&I class is growing at a higher rate, the residential customers of Dairyland's member cooperatives still account for 58.0% of Class A energy sales and 79.4% of customers.

In addition to providing service to its member distribution cooperatives, Dairyland provides wholesale service to seventeen municipal utilities and classifies the sales as Class D. Four of the seventeen municipal utilities are served by Dairyland indirectly through Class A member distribution cooperatives.

Figure 1 shows the breakdown of forecasted energy requirements through 2039 from the 2020 Load Forecast. Historical values are included from 2005 through 2020. Forecast numbers are based on the historical numbers through December 2019.

Figure 1: Dairyland Energy Requirements Composition



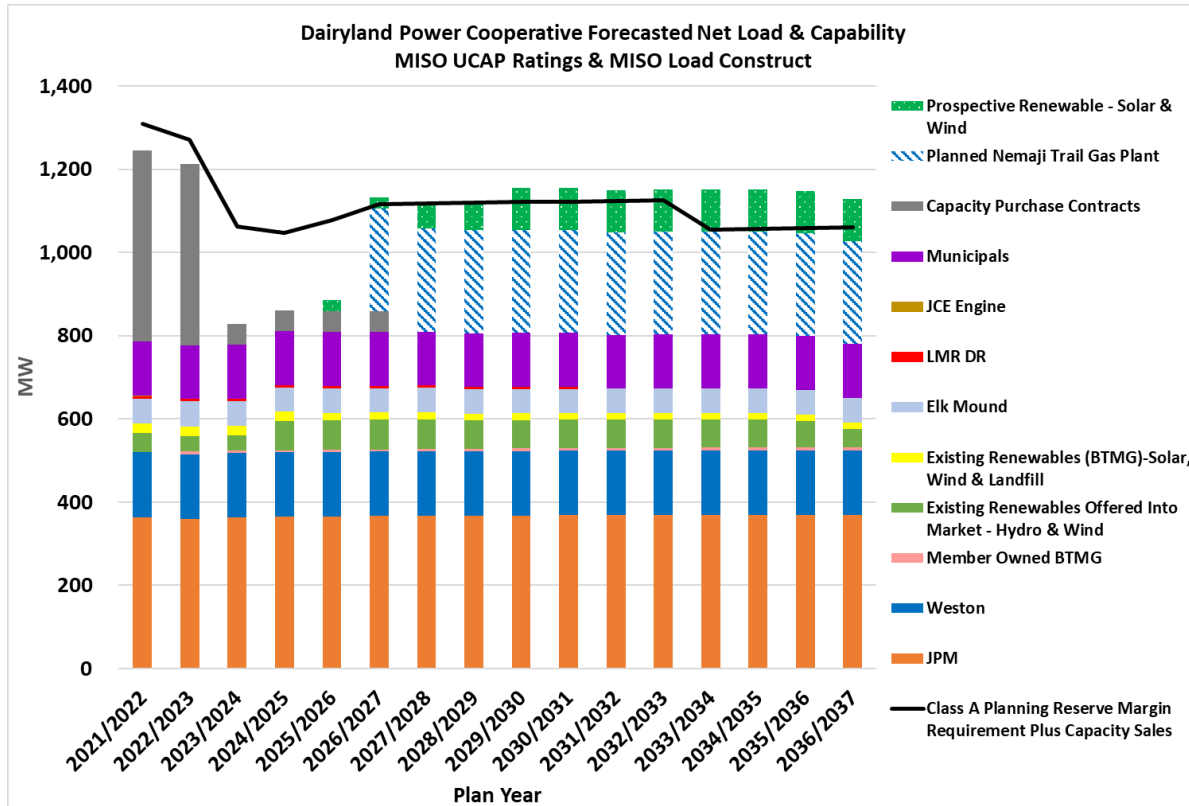
In Figure 1, there is an increase in Dairyland's energy sales in 2018. Prior to April 2018, Dairyland served roughly half of the total requirements of Jo-Carroll Energy, a Class A Dairyland member cooperative in Illinois. As of April 1, 2018, Dairyland serves all of Jo-Carroll's non-retail choice load.

The acquisition of a portion of the Alliant Energy territory in southern Minnesota by Freeborn-Mower Cooperative Services, People's Energy Cooperative and MiEnergy Cooperative will have a similar impact in 2025. Dairyland will begin to serve that acquired load in 2025 and is indicated in Figure 1 and Figure 2 beginning in 2025 and beyond.

D. Current Capacity

Figure 2 includes Dairyland's forecasted net load and capacity to meet the MISO Resource Adequacy requirements. Off-system capacity sales are added to Dairyland's Class A & D planning reserve margin requirement in figure 2.

Figure 2: Dairyland Load and Capability



Dairyland currently owns or has under contract 1,245.5 MW of accredited capacity in MISO. This value is based on the MISO Unforced Capacity (UCAP) definition for the rating of power plants and capacity purchases. The UCAP ratings of the plants take the last three years' forced outage rates into consideration for the rating of the plant. Table 1 shows the accredited capacity that is owned and purchased by Dairyland to comply with MISO's Resource Adequacy Requirements for 2021, and the fuel type of each resource.

Table 1: 2021 Dairyland Accredited Capacity

Module E Accredited Capacity (UCAP Ratings)			
2021 Accredited by MISO (Module E UCAP			
DPC Generation Facility	Capacity) MW	Owned or PPA	Fuel Type
John P. Madgett	362.9	Owned	Coal
Weston 4**	156.7	Owned	Coal
Elk Mound	58.9	Owned	Natural Gas
Flambeau and Sartell Hydroelectric Station	11.3	Owned and PPA	Hydroelectric
Wind Farms	37	PPA	Wind
Other Generation	29.6	PPA	Renewables
Municipals	129.3	PPA	Diesel
Certified Capacity Purchases	459.8	PPA	Not Specified
Total Accredited Capacity		1245.5	
**DPC owns 30% of Weston 4. DPC's net UCAP share is shown above.			

E. Capacity Purchases and Sales

For planning year 2021 only, Dairyland contracted for 4.8 MW and 70 MW capacity purchase agreements. Dairyland has an 85 MW capacity purchase agreement for the years of 2020-2022. In addition, Dairyland has contracted for a larger capacity purchase of 150 MW for plan years 2020-2022. This purchase includes an energy option. There is also an additional 100 MW capacity purchase for 2021 and 2022. The RFP for capacity in 2020 resulted in two completed capacity purchase agreements. One for 50 MW for plan years 2021 and 2022 and a second capacity purchase was completed in the amount of 50 MW for plan years 2022-2026.

Total amount of Capacity Purchase Agreements for each of the following plan years:

2021 – 459.8 MW

2022 – 435 MW

2023 thru 2026 – 50 MW

Total amount of Capacity Sale Agreements for each of the following plan years:

2021 – 305 MW

2022 – 285 MW

2023 thru 2032 – 75 MW

The capacity purchases described here are shown in gray and the capacity sales are added to the Class A & D total planning reserve margin requirement in Figure 2: Dairyland Load and Capability.

F. Genoa #3 Retirement

Genoa #3 station suspended operations on June 1, 2021, while Dairyland evaluates potential future energy or other development at the Genoa site. It is anticipated that upon completion of the site studies the station will be officially retired. With the suspension of Genoa #3, it is anticipated that energy and capacity will be replaced with renewable generation resources through power purchase agreements, purchases from the MISO energy market, MISO's Planning Resource Auction and the planned renewable-enabling Nemadji Trail Energy Center. The suspension of Genoa #3 along with Dairyland's Sustainable Generation Plan, will further diversify Dairyland's resource mix.

G. Capacity Additions

1. Solar Additions

Dairyland permits its member cooperatives to own or purchase from renewable distributed generation facilities a limited amount that will reduce their demand for energy. Currently, there are 6.4 MWs of solar in service that reduce member demand plus an additional 5.7 MWs pending. In addition, Dairyland permits member cooperatives to own or purchase a limited amount of distributed renewable generation within their service territory and sell back to Dairyland as a supply resource. Currently, there is 1.2 MW nameplate of solar installed. This is shown in Figure 2 & 3: Load and Capability and is represented as Member Owned BTMG.

In 2019, Dairyland signed an agreement for the output of 149 MW of solar from the Badger State Solar project located in Jefferson County, WI. Construction is planned to begin in 2022 and commercial operation will commence in 2023. Badger State Solar will power over 20,000 homes. In addition, a pollinator habitat is planned for this site.

2. Wind Additions

In 2021, 2.5 MWs of member owned distributed wind was placed in service and sold to Dairyland as a supply resource.

The Tatanka Ridge Wind Farm (Deuel County, S.D.) began commercial operation in January 2021. Dairyland has a power purchase agreement (PPA) with Tatanka Ridge Wind, LLC, for 51.6 MW of renewable energy— enough to power more than 16,000 homes.

3. Prospective Solar and Wind Additions

Dairyland is considering adding 65 MW of wind nameplate capacity starting in 2025 and 65 MW of solar nameplate capacity starting in 2025. Combined wind and solar will gradually increase to 490 MW nameplate by 2036. The wind and solar capacity under consideration is indicated in the green striped lines in Figure 2: Dairyland Load and Capability. Dairyland will continue to work on these potential additions, but if it is not

successful by the anticipated start dates, the capacity will be made up with either bilateral purchases or the MISO Planning Resource Auction.

4. Other Additions

In 2021, Dairyland entered into a 10-year power purchase agreement for 5.8 MWs of an LMR project. In addition, Dairyland signed an agreement for a 2.1 MW gas engine for 2021 with the intent to sign a power purchase agreement for 9 additional years.

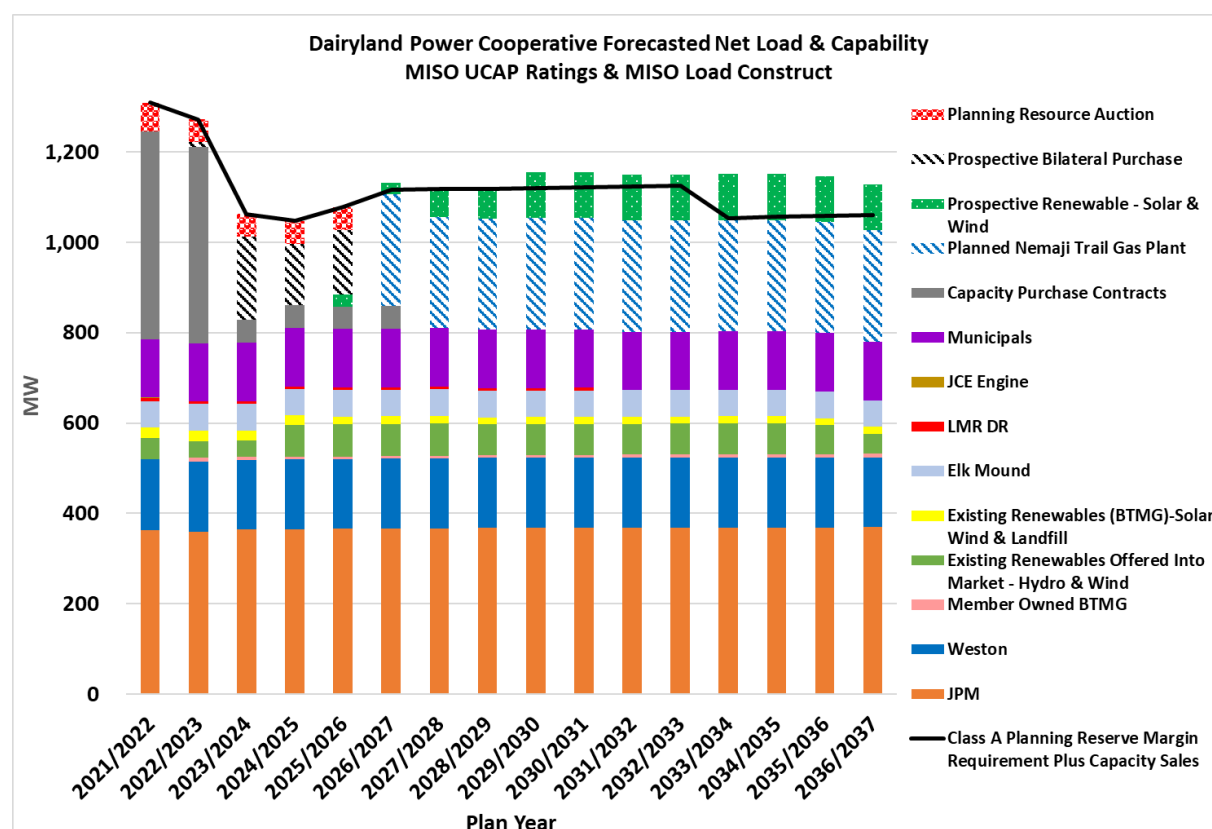
5. Nemadji Trail Energy Center (NTEC)

Dairyland and South Shore Energy are working together on the development of a natural gas combined cycle facility. The proposed plant is estimated to have an installed capacity of 550-625 MW. Dairyland would have a 50% share of the project. The facility is intended to enable further development of intermittent renewable resources on each of the utility systems as well as in the upper Midwest. In January of 2020, the project received a Certificate of Public Convenience and Necessity (CPCN) from the Public Service Commission of Wisconsin (WI). The WI Department of Natural Resources is currently reviewing several permit applications for the project. The permit review process is expected to conclude, with the issuance of needed permits in the second half of 2021. The WI CPCN decision is currently under legal review in the Dane County Circuit Court. Dairyland and South Shore Energy entered an application with MISO in June 2017 to include the plant in the August 2017 generator interconnection study group. The Generation Interconnection Agreement was executed by all parties in 2020.

H. Surplus/Deficit

Figure 2 shows Dairyland's forecasted net load and capability to meet the MISO Resource Adequacy requirements. Under the current plan year, 2021, Dairyland has adequate resources to meet the Class A & D planning forecast requirement. Figure 3 shows for plan years 2022 - 2036, Dairyland anticipates that it will fill projected capacity needs to meet its planning reserve margin requirement through project development, bilateral renewable or conventional power purchase agreements and through purchases from MISO's Planning Resource Auction. The capacity volume filled by each type of resource identified above will be adjusted as load changes and specific resources are added to the portfolio.

Figure 3: Dairyland Load and Capability – Includes Prospective Bilateral Purchases and Planning Resource Auction Purchases



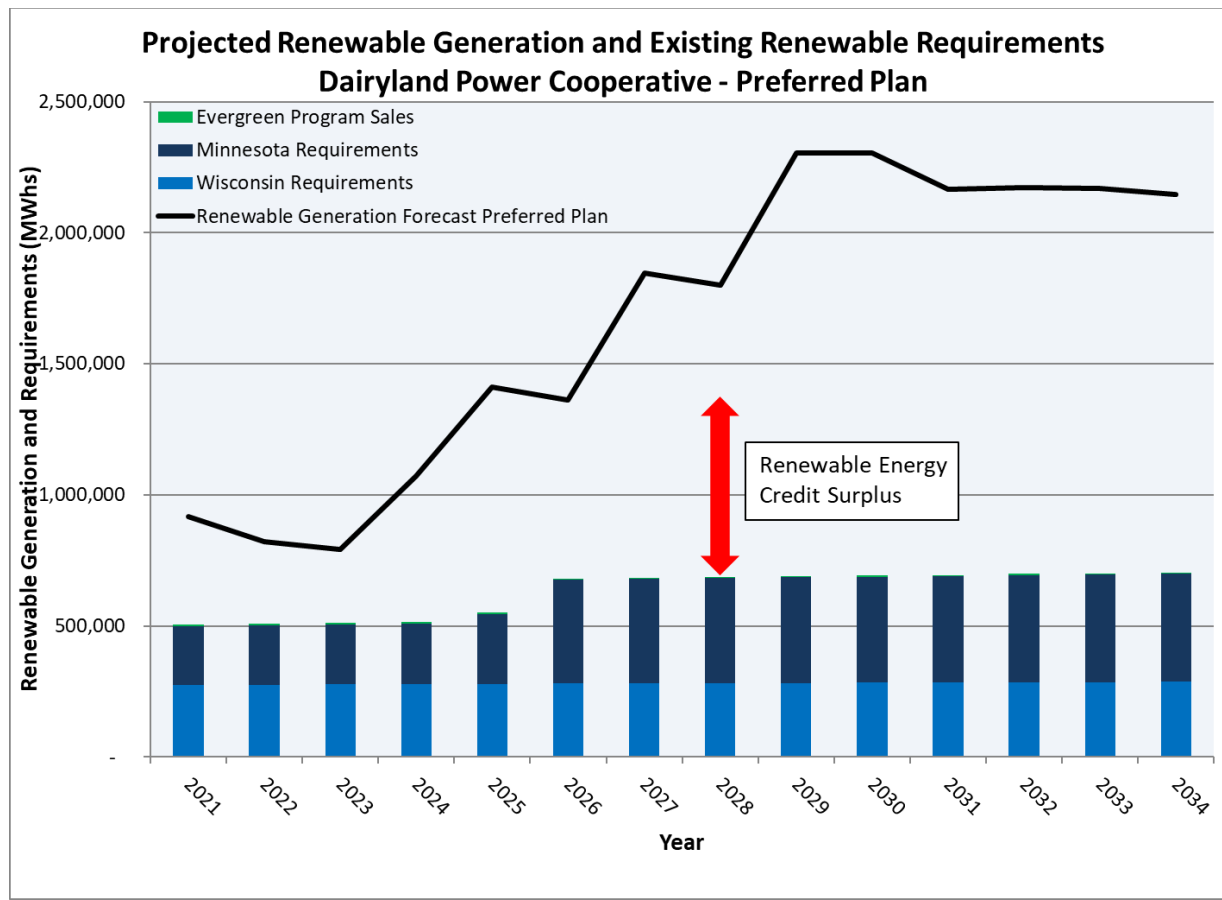
I. Renewable Generation Summary

Dairyland owns or purchases a variety of renewable generation including hydroelectric, wind, landfill gas, animal waste gas, and solar. Dairyland intends to meet its renewable obligations in all the states where Dairyland provides wholesale service¹. For Minnesota, Dairyland files renewable compliance documents each year to demonstrate compliance with Minn. Stat. § 216B.1691. In addition, Dairyland files biennial compliance documents in Minnesota detailing Dairyland’s renewable compliance efforts. Each of these reports along with this O-IRP Report provides a basis for evaluating Dairyland’s renewable compliance position in Minnesota. In addition to the renewable standards, Dairyland has a green energy program (Evergreen Program) that is separate from state requirements.

Dairyland’s projected renewable generation and existing renewable requirements are provided in Figure 4. An estimate of Evergreen Program sales is also provided in Figure 4 in addition to the state renewable obligations. The Current Renewable Generation Forecast shown in Figure 2 and 3, includes an annual estimate of the renewable generation from projects that are currently in Dairyland’s renewable generation portfolio.

¹ Iowa and Illinois do not have renewable energy requirements applicable to Dairyland.

Figure 4: Forecasted Total Dairyland Renewable Energy Requirements



Dairyland notes that with the resources it has in place now along with the additional planned resources, it will have a renewable certificate surplus in 2021, as well as, subsequent planning years. As shown in Figure 4, assuming all other existing renewable projects and contracts continue to be in place and operate along with the prospective solar and wind additions, Dairyland will have enough renewable resources in place to not only meet all its obligations, but exceed them in each year of the planning period by a significant margin, resulting in a renewable certificate surplus.

As part of Dairyland’s resource planning efforts, Dairyland is continually evaluating and assessing new renewable resources and technologies. Dairyland also continues to evaluate the reliability impacts of adding new intermittent renewable resources in its system and the corresponding cost impacts as seen through the hourly locational marginal prices (LMPs) at each existing renewable facility’s commercial pricing node. Dairyland models potential new resource dispatch scenarios (renewable and conventional) against hourly LMP forecasts to assess the full costs and benefits of acquiring new renewable generation. Dairyland will continue to consider self-build projects and work with cooperative members, independent power producers, and others to expand and maintain its robust and diversified renewable generation portfolio in a cost-efficient manner. Dairyland’s efforts have been detailed in numerous annual and biennial docket submittals since the REO and RES became law.

J. Community Solar

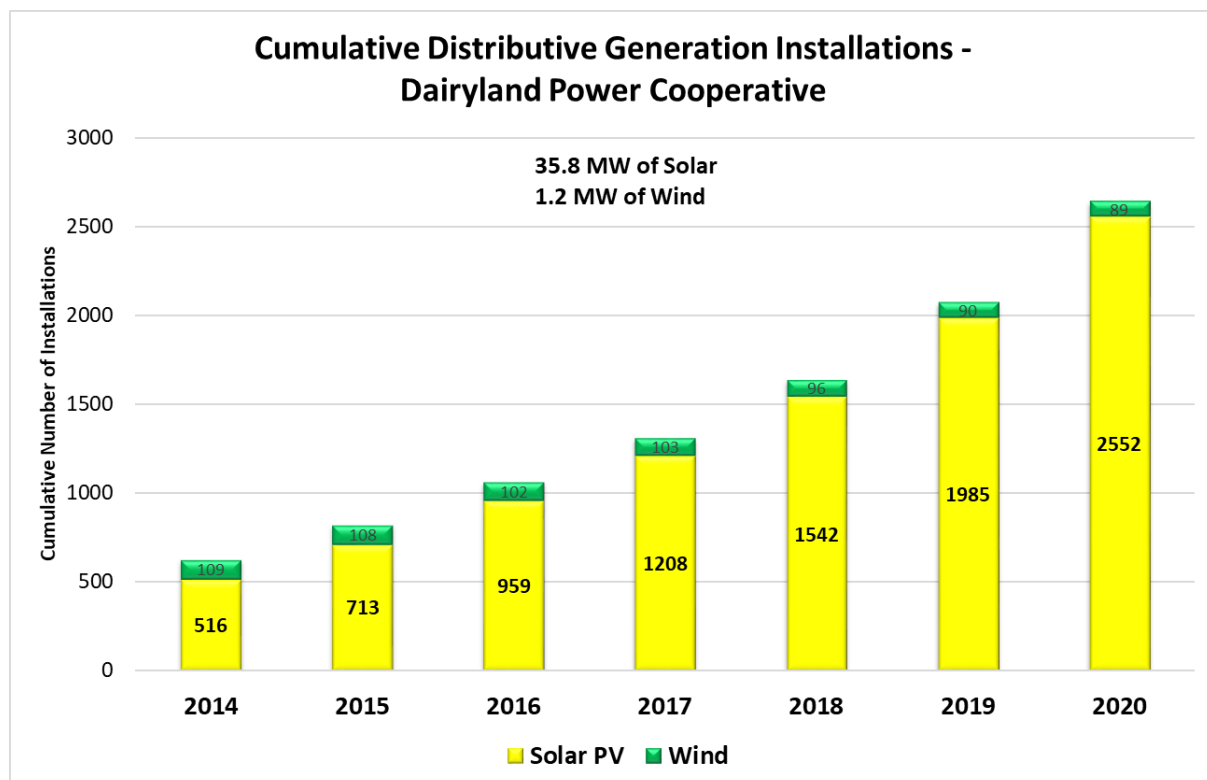
Dairyland's member cooperatives have added community solar projects to their distribution systems. As of June 2021, there are a total of 25 different sites operational with a total nameplate capacity of 6,099 kW AC.

K. Distributed Generation (DG)

Dairyland has implemented a small renewable tariff (net metering for projects under 40 kW) that is available to retail members of Dairyland's Minnesota member distribution cooperatives. In the entire Dairyland system there are 2,641 member-owned solar and wind projects having a nameplate capacity size of less than 40 kilowatts each. Through 2020, retail members of Dairyland's member distribution cooperatives installed 35.8 MW of distributed solar projects and 1.2 MW of wind.

Displayed in Figure 5, the number of member-owned solar DG installations (<40 kW) continues to increase on the Dairyland system with solar representing nearly 97% of all DG installations at the end of 2020.

Figure 5: Dairyland Cumulative Installations of DG



L. Energy Efficiency

Dairyland filed the Conservation Improvement Program compliance filing with the Minnesota Division of Energy Resources in May 2021. Compliance is achieved as Dairyland and its member cooperatives encourage energy users in Dairyland's service territory to conserve energy by providing incentives on energy efficient appliances, appliance recycling, heating equipment, lighting, water heating, agricultural, commercial, and industrial equipment. An incentive is also available for homes implementing measures recommended in an audit and for new homes that meet the requirements of the Touchstone Energy Home program. Dairyland's Incentive Program is also encouraging beneficial electrification by incenting EV charging stations providing measures can be taken to keep the charger off-peak. Custom incentives are also available for agricultural, commercial, and industrial equipment not covered under the above listed prescriptive incentives.

M. Load Management

Dairyland's resource portfolio also consists of demand-side resources aggregated and managed by its Load Management system to achieve economic, operational, and sustainability benefits for the cooperative membership. Load management puts energy conservation to work through active management of residential, agricultural, commercial, and industrial loads. This can improve grid sustainability by better aligning electricity needs to the availability of intermittent renewable resources, such as wind and solar. Additionally, energy consumption can be shifted to periods of lower energy pricing, and system-wide peak demands are lowered, which can alleviate capacity constraints and reduce the overall need for generation infrastructure. Dairyland estimates activating the Load Management system can reduce demand for electricity by approximately 80 MW in the summer and 140 MW in the winter – the equivalent size of a small power plant.

N. Consideration of Environmental Costs

Apart from a relatively small amount of Minnesota renewable generation purchased by Dairyland, all Dairyland's owned or purchased generation is located outside of Minnesota. At this time, Dairyland is not planning to build any generation that would require a Minnesota Certificate of Need; therefore, there are no Minnesota resource options for which an evaluation of environmental values would be required. If Dairyland's plans change regarding new Minnesota resources, it will inform the Commission of the change by no later than the next O-IRP report submittal date.

O. Electric Vehicles

Dairyland has one fully electric vehicle and five plug-in hybrid vehicles in its 2021 fleet. Going forward, fleet vehicles will be replaced with hybrid vehicles. Dairyland is working with the three distribution cooperatives that we serve in Minnesota to build out additional public Level 2 electric vehicle charging infrastructure in strategic places to enable EV ownership. Dairyland offers a monetary incentive for home chargers that are on a time of day rate or direct load control program.

P. Conclusion

Dairyland is using a balanced and pragmatic approach to add natural gas generation and renewable generation to meet the future load obligations and continue to diversify the Dairyland generation portfolio. Dairyland intends to use short-term capacity contracts to purchase or sell any short-term capacity deficit or surplus while it continues to evaluate its existing plants and new generation. Dairyland is currently meeting the MISO Resource Adequacy requirements and all the renewable energy obligations and plans to do so in the future.

Dairyland requests that the Commission find and conclude that:

1. Dairyland is eligible to submit an O-IRP report because it is a Generation and Transmission (“G&T”) cooperative that has at least 80 percent of its member distribution cooperatives located outside of Minnesota and provides less than four percent of the electricity annually sold at retail in the State of Minnesota.
2. Dairyland’s O-IRP report includes projected demand levels for the next 15 years and generation resources to meet any projected generation deficiencies.

Dairyland also requests that the Commission acknowledge receipt of its O-IRP report, find the report complete, and close this matter.

Dairyland appreciates the opportunity to submit an O-IRP report and hopes the Commission will find that the annual O-IRP report provides an informative overview of the Dairyland system and a timely update on Dairyland’s load and capability and associated infrastructure changes.